Response to Comments on the PCB Monitoring TAC
June 11th, 2007
Dated 11/15/07

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Introduction

The Department of Environmental Quality (DEQ) held the second Technical Advisory Committee (TAC) to assist in the development of a guidance document for low level Polychlorinated Biphenyl (PCB) monitoring for point source discharges of wastewater and industrial stormwater. The guidance is needed to promote statewide generation of PCB data with consistency and efficiencies within the TMDL program. The meeting was held at DEQ's Piedmont Regional Office on June 11 (2007) and minutes of the meeting were distributed to TAC members on July 17 (2007).

On July 17th and 23rd, several TAC members submitted comments on the Draft PCB PS Monitoring Guidance. The comments and questions submitted are presented below, followed by a DEQ response.

Comments from the Virginia Manufactures Association (VMA) – July 17, 2007

Comment 1 – Clarification of Purpose

VMA recommended that the data generated as part of this monitoring program using Method 1668A should be used solely for TMDL development purposes and any reference to permit development should be deleted. In addition, this guidance should be more narrowly focused on the technical aspects of how and when samples will be collected and analyzed as well as the types of facilities subject to the monitoring requirements.

Response

Agree. Deletions to referenced sections should appear in the updated Draft Guidance Document.

Comment 2 – Industrial Facilities

VMA recommends that DEQ distinguish the requirements to both industrial and municipal facilities in sections IV.A and C. VMA also urges DEQ to clarify which types of industrial facilities will be subject to monitoring requirements and suggest an exemption process should be incorporated into the guidance. Particularly if a facility can document that it has no PCBs in its raw materials, transformers or other equipment on site (past or present). In addition, wastewater from some industrial processes is not influenced by wet weather conditions. Accordingly, the frequency and number of samples should be determined on a case-by-case basis for industrial facilities.

Response

Reference to industrial facilities that "comprise a significant volume of flow to the receiving impaired water body" has been removed. The revised draft will include specific language for the types of industrial facilities subject to monitoring requirements based on the Standard Industrial Classification (SIC) code.

As noted above and acknowledged by VMA, this monitoring program is for data generation in support of TMDL development. The best way to demonstrate a facility is not the source of PCB contamination is through monitoring. Without data, a facility would be identified as non-source during the assessment phase, and could receive a zero allocation. This could pose problems for the facility if ambient water column data demonstrate the facility is a source of contamination. With some 400+ industries registered throughout Virginia, the guidance document establishes a set of decision rules for selecting which facilities should and should not require monitoring. To be

consistent with current regulations, only those exemptions specified in 9 VAC 25-151-70 will be considered at this time. It should be noted that a "non" PCB transformer is defined as < 50 ppm. It is anticipated that most facilities will be shown to be minor sources of contamination; however, it is important to include in the source assessment.

Comment 3 – Credit for Intake Values

VMA believes industrial facilities should not be penalized for the presence of PCBs in their intake water and referenced the Great Lakes Initiative (**40 CFR 132**) be incorporated.

Response

As noted in the guidance document, monitoring of point source discharging into PCB impaired waters is intended for TMDL development as part of data generation and source assessments. As a result, the guidance is intended for monitoring discharge and not intake waters. The Great Lakes Initiative considers intake pollutants in determining reasonable potentials only in the absence of a TMDL (Appendix F, Sections D and E). Consideration of additional data would be in conjunction with TMDL implementation or VPDES permits, but not part of this guidance or the TMDL assessment. If a facility was to monitor their intake water, such data should be in accordance with the Guidance Document.

Comment 4 – Flexibility in Sampling Time / Frequency

Industrial facilities are extremely diverse in their site conditions and activities and recommends language be included in the guidance document be determined on a case-by-case basis, taking into consideration site-specific considerations. VMA also questions the need for verification samples under certain conditions.

Response

DEQ staff acknowledges that both municipal and industrial facilities can be extremely diverse in both size and function. As noted above, this guidance is intended to provide a general approach for monitoring requirements with flexibility including sampling time and frequency.

As stated above, the monitoring requirements are for data generation, and state that a second round of sampling may be required if any single sample records a tPCB concentration above half the water quality standard (WQS). This requirement is to ensure the facility is not violating water quality standards. However, if a facility feels that additional sampling is not necessary, they should provide the Regional TMDL Coordinator documentation of reasonable assurances that the discharge is not violating water quality standards.

Comment 5 – Standard Operating Procedures

It will be very difficult to approve of or apply the monitoring requirements in the guidance without knowing the specific SOPs that will govern such monitoring.

Response

DEQ staff acknowledges this limitation and will provide effluent monitoring procedures to TAC members prior to next meeting.

Comment 6 – Storm Water Sampling

VMA wants to learn more about PCB monitoring at storm water outfalls and recommends monitoring should not be required at every storm water outfall if one is representative. In addition, if a facility is unlikely to be a source of PCBs, the exemption should extend to storm water sampling as well.

Response
DEQ agrees with these comments as noted above. The guidance document will include special conditions/exemptions in accordance with **9VAC 25-151-70**.
http://www.deq.virginia.gov/vpdes/pdf/9VAC25-151-IndustSWGP-08-31-04.pdf

Comments from Dominion – July 20, 2007

Comment 1 - Application

Dominion supports the adoption of an exemption process in the guidance and recommends that a facility be exempt from sampling if there is sufficient evidence that there are no known past or present PCB sources on site. In addition, consideration should be given for the allowance of flexibility in sampling times, locations and frequency due to site-specific considerations.

Response
DEQ will include exemptions in the guidance based on the storm water discharge permitting for industrial activities (**9 VAC 25-151-70**).

As noted above, this guidance is intended to provide a general approach for monitoring requirements with flexibility including sampling time and frequency. However, if a facility believes they are unable to meet the minimum requirements (a single sample) they shall submit proper documentation to the TMDL Regional Coordinator clearly explaining the need for modification(s).

Comment 2 - Methodology

The respondent recommends the assignment of a "J" value for results between detection and calibration levels are appropriate, but a value of "0" be assigned for those below detection levels. In addition, they urge DEQ to incorporating sampling protocols used in other states such as Delaware or the Potomac.

Response
DEQ agrees with the use of "J" value and assigning a value of "0" for those below the detection levels. As urged by Dominion, DEQ has incorporated sampling protocols developed for the Delaware and Potomac Rivers with some modification to allow for diverse situations.

Comment 3 - Sampling

Dominion recommends adding language that credits intake levels of PCBs against sample results for outfalls. In addition, they recommend representative sampling be allowed for facilities with multiple storm water discharges. For example, stations with multiple non-contact cooling water discharges that are substantially identical, a single outfall should be considered representative of the other outfalls, and a single sample should satisfy the requirements for the guidance.

Response
As noted in the guidance document, monitoring of point source discharging into PCB impaired waters is intended for TMDL development as part of data generation and source assessments. It is not intended for permit compliance purposes. Therefore, the guidance is not requiring facilities to sample or monitor intake water. If a facility monitors their intake water, any consideration of additional data would occur in conjunction with the TMDL implementation. Such data generation should be in accordance with the Guidance Document.

DEQ agrees consideration be given to representative outfall sampling, and the guidance document will include special conditions/exemptions regarding multiple outfalls as defined in **9VAC 25-151-70**.

Comments from the Virginia Association of Municipal Wastewater Agencies – July 23, 2007

Comment 1 – Status of Method 1668A

VAMWA continues to express their concern over the use of EPA Method 1668A for PCB congener quantitation and the lack of a validation study as referenced in EPA's Protocol for Approval of New Methods for Organics and Inorganic Analytes in Wastewater and Drinking Water.

Response

EPA Method 1668A was released as a final method in December, 1999 with a full complement of quality assurance steps, and two validation studies have been performed. Method 1668A is suggested for use in data gathering and monitoring associated with the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Safe Drinking Water Act (EPA-821-R-00-002). This includes its use for generation of data used to determine total maximum daily loads (TMDLs) and for characterization of ambient concentrations and loadings under EPA's Clean Water Act programs (May 31, 2000 letter from William Telliard, Director, Analytical Methods Staff, EPA Office of Water). At the time of its publication, EPA had validated Method 1668 in two laboratories and Method 1668A in a single laboratory. The peer review (February, 2000) conducted of Method 1668A prior to its publication as a final method found that "Method 1668A is acceptable for reliability and ease of use". EPA has recently conducted a six lab inter-laboratory validation study of method 1668A in wastewater and fish tissue matrices. The results of the study are favorable enough to consider proposing Method 1668A for inclusion in 40CFR Part 136. However, it is EPA policy to peer review validation study before deciding whether to conduct a rulemaking. The peer review is scheduled to be completed after which EPA will review the comments received and decide on a course of action.

The District of Columbia, Maryland and Virginia adopted the use of Method 1668A in development of the Potomac PCB TMDL and subsequently used by Virginia as part of the Roanoke TMDL.

Comment 2 – Limitations of the Method

The respondents challenge the low quantification levels reported by the analytical laboratory(s) reporting. They ask that future procurement of analyses using Method 1668A specifically require a laboratory demonstrate QL for these analyses. In lieu of a QL demonstration, it appears that the analyses are reporting background noise.

Response

Method 1668A has not yet been approved under 40 CFR Part 136; however, its use by regulatory agencies in the NPDES permit program must be defended on a case by case basis. The NPDES permit regulations (40 CFR 122.41(j)(1), 122.41(j)(4), 122.44(i)(1)(iv), 122.48) allow for this flexibility on a case by case basis. However, the Clean Water Act purposes other than NPDES compliance is entirely appropriate, as noted in Comment 1.

Method 1668A is performance based. The detection limits and quantification levels in this Method are determined by the laboratories and are usually dependent on the level of interferences and laboratory background levels rather than instrumental limitations. The GC/MS portions of this Method are for use only by analysts experienced with HRGC/HRMS or under the close supervision of such qualified persons. Since 1668A is a performance based method, steps are taken to minimize or eliminate background and interfering compounds. With regard to sample collection, the addition of preservatives (H_2SO_4, sodium thiosulfate) from unknown/non PCB tested sources can be eliminated. Applied steps relevant to the analytical method can include increasing the volume of sample analyzed, rigorous sample clean-up, baking glassware at a high temperature, increasing pre-post extract injection rinses, minimizing solvents used in extraction by keeping the sample at the appropriate nominal volume, etc. By improving technical procedures as described above, the Estimated Method Detection Limits (EMDLs) and the Estimated Minimum Levels (EMLs) presented in the EPA Report (EPA-821-R-00-002) documenting Method 1668A can be significantly improved upon.

As defined and implemented through the VPDES program, the quantification level (QL) is the lowest concentration used for the calibration of a measurement system. As noted for the Potomac PCB TMDL study, the lowest calibration level was sample dependant and ranged from 8-11 pg/L on a congener basis. The QL is computed using the low calibration standard (1 ng/mL) with the following equation:

$$QL = (1000 \text{ pg/ng}) \text{ X } (1 \text{ ng/mL}) \text{ X } (0.02 \text{ mL})/2 \text{ L} = 10 \text{ pg/L}$$

Note the sample volume is doubled from that recommended in the method which results in a lower QL. For the development of the Delaware Bay TMDL, DRBC utilized 0.5 ng/mL as the lowest standard which reduced their QL or ML to 5 pg/L (Sandeen et al. 2005). We are presently considering this as a requirement for PCB data generation under this guidance.

The ability to further quantify a sample is provided by isotopic dilution. This is performed through the addition of known concentrations of labeled PCB compounds to every sample prior to extraction. Correction for recovery can be made because the labeled analogs act similar to the native PCBs.

Lastly, the laboratory will be required to submit a quality assurance report. The report will include documentation of QA items such as calibration verification (VER), initial precision recovery (IPR), on–going precession recovery (OPR) and other method performance requirements such as appropriate blanks. Finally, a specific set of conditions must be met for the method blank (i.e., a measure of background) to be accepted for a particular batch of samples.

Comment 3. – 9VAC 25-31-190.H does not Provide Authority for Requirements for Permittee Generation of New Data.

VAMWA views **9 VAC 25-31-190.H** as authorizing requests for existing information, and not for the generation of new data and believe data generation requirements are proper pursuant to specific regulations.

Response

Virginia's administrative code **9VAC 25-31-190.H** does not specify the type of data, but is clear in its intent to "*...require the permittee to furnish, upon request,… pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters…*"

Pursuant to §62.1-44.19.5.B, WQMIRA (1996) authorizes such monitoring in order to conduct source assessments. Such a request of information has been delegated to the Director and program managers (**9 VAC 25-31-9200).** Permit language will be included in the guidance document for new or reissuance of permits.

Comment 4 – Current Approach Does Not Encourage Data Generation Using Method 1668A

VAMWA states that the use of Method 1668A data generates poor quality data that represents a step backward for good science. If EPA wants TMDLs done for PCBs at low levels, it is incumbent on EPA to develop a method that will produce accurate data. VAMWA would recommend this approach to its members if a net/gross rule is written to address their data concerns. They offer two options for consideration. Option 1 includes a Validation Study of Method 1668A. Option 2 refers to qualitative use of Method 1668A and provide for a net/gross analysis where the pollutant is present in intake water.

Response:

The use of EPA Method 1668A for the Potomac TMDL development was a jurisdictional decision for the Tidal Potomac PCB TMDL and DEQ recommended it for the Roanoke TMDL development. As noted in the responses to Comment 1 & 2, Method 1668A is performance based. The detection limits and quantitation levels in this Method are determined by the laboratories and are usually dependent on the level of interferences and laboratory background levels rather than instrumental limitations. EPA recognizes that an authorized state may specify the suitable method more sensitive than the measurement capabilities of methods approved in Part 136 for informational purposes (EPA 2007a).

As noted in the guidance document, monitoring of point source discharging into PCB impaired waters is intended for TMDL development as part of data generation and source assessments. It is not intended for permit compliance purposes. Therefore, the guidance is not requiring facilities to sample or monitor intake. Consideration of additional data would be in conjunction with TMDL implementation or VPDES permits, but not part of the assessment. If a facility were to monitor their intake water, such data should be in accordance with the Guidance Document.

References:

EPA. 1997. *Toxic Polychlorinated Biphen yls by Isotope Dilution High Resolution Gas Chromatography/High Resolution Mass Spectrometry* EPA-821-R-97-001 (March 1997 DRAFT) Note: This is a PDF image of the printed report. (Method 1668, Revision A: Chlorinated biphenyl congeners in water, soil, sediment, and tissue by HRGC/HRMS. U.S. Environmental Protection Agency, Office of Water. EPA-821-R-00-002. No weblink found)

EPA. 1999. Chlorinated biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS Method 1668, Revision A with corrections and changes through 8/20/03.

EPA. 2000. Method 1668, Revision A: Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS. EPA-821-R-00-002. http://www.epa.gov/region3/1668a.pdf

EPA. 2007a. NPDES Permitting Authorities have some discretion in specifying methods more sensitive than 40 CFR Part 136. Correspondence from Brian Trulear, NPDES Program Manager, EPA Region III to Charles Martin, VADEQ Watersheds Program, June 8, 2007.

EPA. 2007b. Regional Approval of Limited Use Methods. Letter from Reding to Sotolongo.

Great Lakes Initiative (**40 CFR 132**). http://www.access.gpo.gov/nara/cfr/waisidx_03/40cfr132_03.html

Sandeen, LR., JD Wetherington, DR Blye, and R Sankarmanchi. 2005. Application of the DQO process to the Delaware Estuary PCB TMDL Program. Water Environment Federation, Specialty Conference. Pg 192-211.

9 VAC 25-31-190.H *Duty to Provide Information The permittee shall furnish to the department, within a reasonable time, any information which the board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. The board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the law. The permittee shall also furnish to the department upon request, copies of records required to be kept by the permit*

9 VAC 25-151-10 et seq. – General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Storm Water Associated with Industrial Activity - http://www.deq.virginia.gov/vpdes/pdf/9VAC25-151-IndustSWGP-08-31-04.pdf

9VAC 25-151-70. -http://www.deq.virginia.gov/vpdes/pdf/9VAC25-151-IndustSWGP-08-31-04.pdf

9 VAC 25-31-920 - located at http://deqnet/docs/admin/admin_policy/public_affairs_and_policy/delegations of_authority_signed_Oct2006.doc.

WQMIRA, 1996. Water Quality Monitoring, Information and Restoration Act § 62.1-44.19:4. http://www.deq.virginia.gov/regulations/documents/waterlaw2006.doc